## REMARKS/ARGUMENT

Claims 1-6 are pending and have been examined. Claims 1-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Inoue in light of what is known to those of ordinary skill in the art.

The Applicant has amended claims 1-3 and 5-6. Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment.

In light of these amendments, and the remarks set forth below, the Applicant requests reconsideration of the rejection of claims 1-6.

Claim 1 is written in independent form, with claims 2-6 depending from, and including all of the limitations of, claim 1. Claim1 requires "a ***photosensitive polymer*** filled in said groove, said photosensitive polymer having a negative refractive index temperature coefficient." Each of claims 2-6 also require this limitation by virtue of their dependence on claim 1.

While Inoue discloses that a groove may be filled with a temperature compensating polymer material having a certain refractive index, Inoue fails to disclose or suggest the use of a ***photosensitive*** polymer having a negative refractive index temperature coefficient filled in the groove. Thus, Inoue is deficient with respect to disclosing the limitations recited by claims 1-6 of the present application. Furthermore, the Office Action does not cite any reference or any teaching in the prior art that cures this deficiency in

Inoue. As such, the Office Action fails to establish a *prima facie* case of obviousness with respect to claims 1-6, and the Applicant respectfully requests that the rejection under Section 103 be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

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## APPENDIX A
## Complete Set of Claims Pursuant to 37 CFR § 1.125

Claim 1. (Currently and Previously Amended) A temperature-independent arrayed waveguide grating, comprising at least an input waveguide, an input slab waveguide including an input side and an output side, said input side of said input slab waveguide receiving light from said input waveguide, a plurality of arrayed waveguides including an input side and an output side, said input side of said plurality of arranged waveguides being connected to said output side of said input slab waveguide, an output slab waveguide including an input side and an output side, said input side of said output slab waveguide being connected to said output side of said arrayed waveguides,

a plurality of output waveguides connected to said output side of said output slab waveguides;

a wedge-shaped groove formed in said arrayed waveguides; and

a [material] photosensitive polymer filled in said groove, said [material] said photosensitive polymer having a negative refractive index temperature coefficient;

wherein said [material] photosensitive polymer disposed in said groove confines light incident to said groove in a vertical and a horizontal direction thereby preventing the light from spreading in said groove.

Claim 2. (Currently Amended) The temperature-independent arrayed waveguide grating in accordance with claim 1, wherein[:

said material filled in said groove is a photosensitive material; and]

a difference in a refractive index is provided in said [material] photosensitive polymer using the photosensitivity, and optical waveguides are thereby formed in said [material] photosensitive polymer in a horizontal direction or in vertical and horizontal directions.

Claim 3. (Currently Amended) The temperature-independent arrayed waveguide grating in accordance with claim 1, wherein said [material] photosensitive polymer filled in said groove has a refractive index higher than that of material of said arrayed waveguide grating.

Claim 5. (Currently Amended) The temperature-independent arrayed waveguide grating in accordance with claim 1, wherein:

said [material] photosensitive polymer filled in said groove [is a photosensitive material having] has a refractive index higher than that of material of said arrayed waveguide grating; and

difference in a refractive index is provided in said [material] photosensitive polymer using the photosensitivity and optical waveguides are thereby formed in said [material] photosensitive polymer in a vertical direction or in vertical and horizontal directions.

Claim 6. (Currently Amended) The temperature-independent arrayed waveguide grating in accordance with claim 1, wherein:

said [material] photosensitive polymer filled in said groove has a refractive index higher than that of material of said arrayed waveguide grating; and

width of each core of said arrayed waveguides is enlarged before and after said groove.